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10/662,818	09/16/2003	Gene Sidney Shelp	616-76US	1104
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Anthony Asquith		EXAMINER		
#28		WILKINS III, HARRY D		
461 Columbia Street West		ART UNIT		
Waterloo, ON N2T 2P5		PAPER NUMBER		
CANADA		1742		

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/662,818

Applicant(s)

SHELP ET AL.

Examiner

Harry D. Wilkins, III

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/26/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of group I (claims 1-11 and 13) in the reply filed on 28 February 2006 is acknowledged. The traversal is on the ground(s) that the process and apparatus require the same features. This is not found persuasive because of the additional reason for proper restriction that the apparatus of claim 1 could have performed a materially different process than the process of claim 12. See MPEP 806.05(e). The apparatus of claim 1 would have been capable of reducing a non-ammonia/ammonium reactant, all be it nitrogen containing, to nitrogen gas, such as a triazole compounds in aqueous solutions (see US 6,835,298 for support). Further, the process and apparatus are shown to require a serious burden on the Examiner as evidenced by the separate classification of the process and apparatus. See MPEP 808.02. Applicant is reminded that apparatus claims are limited by the structure of the apparatus, not by how the apparatus operates or by the material worked upon by the apparatus. See MPEP 2114 and 2115.

2. Newly submitted claims 13 and 14 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: as noted in the prior paragraph, the apparatus of claim 1 could have been used to reduce a non-ammonium compound, such as a triazole, into nitrogen gas. Therefore, restriction is proper between claim 1 and claim 13 since the apparatus of claim 1 could have operated a different method. See MPEP 806.05(e). Since claims 1 and 12 are properly restrictable as indicated above, claims 1 and 14 are restrictable for the same reasons.

***Information Disclosure Statement***

3. The information disclosure statement filed 26 April 2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. Those references which are not in compliance have been crossed out by the Examiner to show that they have not been considered.

***Means-Plus-Function Language***

4. Instant claim 9 contains the following terms written in means-plus-function format, and have been interpreted as follows:

“means for elevating the pH of ammonium-laden waste-water” is in proper means-plus-function format and is defined in the specification in paragraph 20. Thus, this term is interpreted to mean a structure for adding a substance which raises the pH of the solution, such as by adding sodium hydroxide, or any equivalent structure which raises the pH of the solution.

“means for maintaining the pH of acid-water” is in proper means-plus-function format and is defined in the specification in paragraph 60. Thus, this term is interpreted to mean a structure for adding a substance which lowers the pH of the solution, such as by adding hydrochloric acid, or any equivalent structure which raises the pH of the solution.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1742

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim recites a limitation that the apparatus "is operable to perform electrolysis ... at the same time." At the same time as what? There is no comparison operation to which the electrolysis occurs simultaneously with. It appears that Applicant is intending to claim that the electrolysis occurred simultaneous to the recirculation of the secondary-water since claim 5 depends from claim 4. For the purpose of examination, the Examiner will assume that that was Applicant's intent.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiasa et al (US 3,929,600).

Hiasa et al anticipate the invention as claimed. Hiasa et al teach (see abstract, figure and cols. 2-4) an apparatus for diminishing the concentration of ammonium in waste-water and for disposing of the ammonium as nitrogen gas including an ammonium-extraction-and-transfer station (3,5) including a waste-water entry port, capable of extracting ammonium from the waste-water stream and to transfer the ammonium to a secondary body of water, and a treated water discharge port for

Art Unit: 1742

discharging the treated waste-water with reduced ammonium content, a body of secondary-water and a circuit for this body formed of water-containment components (i.e.-piping), and an electrolysis station (7) which was capable of electrolyzing the ammonium in the secondary water to nitrogen and hydrogen gases and had a discharge port through which the generated nitrogen gas would have passed. The electrolysis cell of Hiasa et al would have been capable of being utilized at such thermodynamic conditions that would have favored the formation of nitrogen gas. See MPEP 2114.

Regarding claims 2 and 3, the waste-water treated by the apparatus of Hiasa et al does not pass through the electrolysis station, nor does it touch the secondary-water of the electrolysis loop since the waste-water flows through the zeolite when the column is at a first position (3) and the secondary water flows through the zeolite when the column is at a second position (5).

Regarding claim 4, the apparatus of Hiasa et al recirculates the secondary-water from the electrolysis station to the ammonium-extraction-and-transfer station.

Regarding claim 5, the apparatus of Hiasa et al operated continuously such that the electrolysis and recirculation occurred simultaneously.

Regarding claim 6, the apparatus of Hiasa et al would have been capable of continuous circulation of the secondary water and only periodic performance of electrolysis. See MPEP 2114.

Regarding claim 7, the ammonium-exchange-and-transfer station of Hiasa et al was an ion-exchange station. The station included an absorbent-container including a zeolite absorbent (columns positioned at 3 and 5) effective to absorb ammonium from

Art Unit: 1742

the waste-water. The secondary water was of such a nature that it desorbed the ammonium from the zeolite absorbent material and contained (see col. 3, lines 14-25) alkali metal chlorides to improve the ability of the secondary water to desorb the ammonium from the zeolite. The extraction-and-transfer station included connecting conduits. Although not expressly disclosed one of ordinary skill in the art would have immediately envisaged utilizing control valves to control the operation of the absorption of ammonium from the waste-water and desorption of ammonium into the secondary water. The control valves would have been closed when moving the column from the 3 position to the 5 position and vice versa.

Regarding claim 8, the secondary-water circuit recirculated the secondary water through the absorbent-container and to the electrolytic cell.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiasa et al (US 3,929,600) in view of Ross (US 4,093,544).

The teachings of Hiasa et al are described above.

Hiasa et al teach an ion-exchange extraction of ammonium of the waste-water and not an alkali-acid station as claimed.

However, Ross teaches (see abstract, figures 1-3 and cols. 6-10) a system for extracting ammonium from waste-water including a means for adding a basic substance to the waste-water to increase the pH to more than 10 by adding lime to the waste-water in the pH Control Tank 180, an alkali-station (Ammonia Desorption Tank 12) including a conduit 186 for feeding the pH treated waste-water and a gas conduit 142 and structured such that ammonia gas emanating from the solution is captured and carried away in the gas conduit, a second body of water that is acidic water, a means for maintaining the pH of the acid-water (acid inlet 252), an acid-station 20 which receives the output of the gas conduit 142 and an acid-water conduit 206, with the acid-station 20 structured such that ammonia gas from the gas conduit is taken into solution into the acid-water in the conduit. This system has the advantage of removing operating over a wide temperature range and involved a reasonable capital expense (see col. 5, lines 28-32).

Therefore, it would have been obvious to one of ordinary skill in the art to have substituted the acid-alkali vacuum extraction system of Ross for the zeolite ion-exchange system of Hiasa et al because the vacuum ammonium extraction system operated over a wide temperature range and kept capital costs of ammonium extraction down.

When substituting the vacuum extraction system, one of ordinary skill in the art would have found it obvious to have fed the acid-water of the secondary body of water to the electrolysis station to process the water for removal of the ammonium by



Art Unit: 1742

electrolysis, instead of just merely dumping the contaminated water as suggested by Ross.

Regarding claim 11, since the vacuum system of Ross and the ion-exchange system of Hiasa et al both performed the same function of removing ammonium from the waste-water, it would have been obvious to have provided the two systems as alternatives in a single water treatment plant. Regarding the limitation that the vacuum system received a low-flowrate, high-concentration stream and the ion-exchange system received a high-flowrate, low-concentration stream, the prior art water treatment plant would have been capable of operating in the claimed fashion. Since the ion-exchange zeolite column of Hiasa et al was capable of reducing the overall ammonium content to below 1 ppm, it would have been obvious to one of ordinary skill in the art to have further treated the effluent of the vacuum system in the ion-exchange system to have ensured proper removal of as much ammonium from the waste water as possible.

### ***Double Patenting***

11. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

12. Claims 1-11 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-11 of copending Application No. 10/757,733. This is a

Art Unit: 1742


provisional double patenting rejection since the conflicting claims have not in fact been patented.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Harry D Wilkins, III  
Primary Examiner  
Art Unit 1742

hdw